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Patent Claims

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1. Segment (15) of a sensor-supporting element (11) of a scraper-type device, in which the sensor-supporting element (11) is assembled from such segments (15) and forms a hollow body with a cylindrical envelope surface and the scraper-type device can be moved through a pipeline (13) for the purpose of pipeline testing, whereby the sensor-supporting element (11) is fitted with sensors (21) required for the performance of the pipeline testing,

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characterized in that

- the segment (15) comprises at least two pairs of runners (16), which each consist of essentially parallel runners (19), whereby the pairs of runners (16) of the segment (15) are arranged behind each other (sequentially) against the direction of motion of the scraper-type device, the runners (19) are oriented in the direction of motion of the scraper-type device, sequentially arranged runners (19) are connected elastically to each other by means of connecting elements, a sensor plate (20) for sensors (21) is arranged between the runners (19) of at least one pair of runners (16) and connected to the runners (19) of the pair of runners (16), and the segment (15) is provided such that it can be connected to additional such segments (15) by means of a connecting device connecting the segments (15) so as to form the hollow body with a cylindrical envelope surface.

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2. Segment (15) according to Claim 1, **characterized in that** at least one additional support plate (20) for sensors (21) can be attached between one runner (19) of one segment (15) and one runner (19) of a neighboring segment (15).
3. Segment (15) according to Claim 1 or 2, **characterized in that** the connecting device, which can be used to connect the segment to other such segments (15) to form a hollow body with a cylindrical envelope surface, can be attached to the front side of the segment (15) facing in the direction of motion of the scraper-type device.
4. Segment (15) according to Claim 3, **characterized in that** the connecting device is provided in the form of a flange (6).
5. Segment (15) according to any one of the preceding claims, **characterized in that** the number of its pairs of runners (16) consisting of two parallel runners (19) each is between 2 and 10, preferably between 2 and 4.
6. Segment (15) according to any one of the preceding claims, **characterized in that** it comprises a conical-tapering segment section (18) at its front side facing in the direction of motion of a scraper-type device such that the hollow body assembled from such segments (15) is provided to be truncated cone-shaped at its front side facing in the direction of motion of the scraper-type device.

7. Segment (15) according to any one of the preceding claims, **characterized in that** connecting elements are provided between sequential runners (19) of a segment (15) in the form of parallel elastic interim segments (17) connecting sequential runners (19).
8. Segment (15) according to any one of the preceding claims, **characterized in that** connecting elements are provided between sequential runners (19) of a segment (15) in the form of twin-diverging or -converging elastic interim segments (17) connecting sequential runners (19).
9. Segment (15) according to Claim 7 or 8, **characterized in that** the elastic interim segments (17) are attached at an angle to the runners (19) they connect.
10. Segment (15) according to any one of the Claims 7 to 9, **characterized in that** the elastic interim segments (17) have a round, oval, rectangular or trapezoidal cross-section.
11. Segment (15) according to any one of the Claims 7 to 10, **characterized in that** the cross-section of the elastic interim segments (17) is smaller than the cross-section of the runners (19).
12. Segment (15) according to any one of the preceding claims, **characterized in that** it comprises at its front side facing in the direction of motion of the scraper-type device and between at least one pair of runners (16) a transverse fin (36, 36a, 36b) connecting the runners (19) of the pair of runners (16).

13. Segment (15) according to any one of the preceding claims, **characterized in that** it comprises between the support plate (20), which is attached between a pair of runners (16) and a runner (16) of a trailing pair of runners (16) with regard to the motion of direction of the scraper-type device, a connecting element (35) connecting the support plate (20) and the runner (19).
14. Segment according to Claim 13, **characterized in that** the connecting element (35) is arranged along the longitudinal direction of the runner (19).
15. Segment (15) according to Claim 13 or 14, **characterized in that** the connecting element (35) between a support plate (20) and a runner (19) can be attached to the support plate (20) by means of a sleeve (37).
16. Segment (15) according to one of the Claims 12 to 15, **characterized in that** it comprises between sequential runners (19) an interim element (17), one end of which is connected to a trailing pair of runners (19) by means of a transverse fin part (36a).
17. Segment (15) according to Claim 16, **characterized in that** the interim element (17) is linked to the transverse fin part (36a) by means of a sleeve (37).
18. Segment (15) according to any one of the preceding claims, **characterized in that** it comprises a transverse fin part (36a, 36b), which allows it to be connected to a neighboring segment (15).

19. Segment (15) according to Claim 18, **characterized in that** the transverse fin part (36a, 36b) is provided such that it can be connected to a corresponding transverse fin part (36b, 36a) of a neighboring segment (15).
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20. Segment (15) according to any one of the Claims 7 to 19, **characterized in that** the interim segments (17) are between 2 cm and 50 cm in length.
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21. Segment (15) according to any one of the Claims 7 to 20, **characterized in that** the ratio of the length of the elastic interim segments (17) and the length of the adjacent runners (19) connected by them is between 1/10 and 5, preferably between 2/10 and 1.
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22. Segment (15) according to any one of the preceding claims, **characterized in that** the runners (19) are preferably between 5 cm and 300 cm, preferably between 10 cm and 50 cm, in length.
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23. Segment (15) according to any one of the preceding claims, **characterized in that** the surfaces of the upper sides of the runners (19) are arched transverse to the longitudinal direction of the runners (19).
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24. Segment (15) according to Claim 23, **characterized in that** the surfaces of the upper sides of the runners (19) are arched such that their radius of curvature is adapted to the radius of the cylindrical envelope surface of the hollow body assembled from such segments (15).
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25. Segment (15) according to any one of the preceding claims, **characterized in that** the cross-section of
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the runners (19) is trapezoidal, parallelogram-like or rectangular.

- 5 26. Segment (15) according to any one of the preceding claims, **characterized in that** metallic abrasion-resistant shoes (29) ending flush with the surface of the upper side of the runners (19) are incorporated into the runners.
- 10 27. Segment (15) according to Claim 26, **characterized in that** between 1/10 and 3/4 of the length of a runner (19) are covered by incorporated abrasion-resistant shoes (29).
- 15 28. Segment (15) according to any one of the preceding claims, **characterized in that** the runners (19) comprise recesses (30).
- 20 29. Segment (15) according to any one of the preceding claims, **characterized in that** it is provided such that the support plates (20) can be attached to the underside of the runners (19).
- 25 30. Segment (15) according to Claim 29, **characterized in that** the runners (19) comprise bores for receiving screws such that support plates (20) fitted with internal threads (24) for the screws can be screwed to the underside of the runners (19).
- 30 31. Segment (15) according to any one of the preceding claims, **characterized in that** the support plates (20) for the sensors (21) are level.
- 35 32. Segment (15) according to any one of the preceding claims, **characterized in that** the undersides of the

runners (19) are level and bevelled such that they are adapted to the orientation of a support plate (20) to be attached.

- 5 33. Segment according to any one of the preceding claims, **characterized in that** the runners (19) consist of an elastic material.
- 10 34. Segment (15) according to any one of the preceding claims, **characterized in that** the segment (15) is provided fully or essentially in the form of a single part comprising one or several of the following components: runners (19), connecting elements (35), interim segments (17), conical-tapering segment
15 section (18), transverse fin (36), transverse fin part (36a, 36b).
- 20 35. Sensor-supporting element (11), provided in the form of a cylindrical hollow body, of a scraper-type element, which is assembled from multiple segments (15) according to any one of the preceding claims.
- 25 36. Sensor-supporting element (11) according to Claim 35, **characterized in that** it comprises a connecting device connecting the segments (15) to form a hollow
30 body with a cylindrical envelope surface.
- 30 37. Sensor-supporting element (11) according to Claim 36, **characterized in that** the connecting device comprises a flange (6), which is arranged at the front side of the sensor-supporting element (11) facing in the direction of motion of the scraper-type device.
- 35 38. Sensor-supporting element (11) according to Claim 36 or 37, **characterized in that** the connecting device

comprises U-shaped spring plates (25), which are attached between neighboring segments (15).

5 39. Sensor-supporting element (11) according to Claim 38,
 characterized in that the U-shaped spring plates (25)
 can be attached to the support plates (20).

10 40. Scraper-type element, **characterized in that** it
 comprises segments (15) according to any one of the
 Claims 1 to 34 or a sensor-supporting element (11)
 according to any one of the Claims 35 to 39.